IN THE CLAIMS:

1. (currently amended) A method for generating views of a heart along anatomically useful planes, said method comprising:

selecting a layout for displaying the views;

selecting an imaging exam configured to produce a 3D dataset representing at least one portion of the heart during at least one phase;

generating, by a processor, the cardiac 3D dataset;

calculating, from the cardiac 3D dataset, at least one of a short axis and a long axis without user intervention;

generating, by a processor, a volume of a ventricle of the heart based on the imaging exam selected, wherein said generating the volume comprises creating the volume by region growing;

automatically producing a set of images of the at least one portion of the heart, wherein an orientation, with respect to the long axis, of each of the produced images is automatically determined based on the cardiac 3D dataset and the selected layout; and

diagnosing the heart by analyzing the volume and the produced set of images.

2. (original) A method in accordance with Claim 1 wherein said calculating comprises:

segmenting a left cavity of the heart;

generating a long axis first estimate of the left cavity; and

using the first estimate of the long axis to determine at least two points of a second estimate of the long axis.

3. (original) A method in accordance with Claim 2 wherein said segmenting comprises segmenting a left cavity comprising a left ventricle, an atrium, and an aorta.

4. (original) A method in accordance with Claim 2 wherein said segmenting comprises segmenting a volume whose cardiac EKG phase location is closest to 75% of an R to R interval of the dataset including a plurality of volumes.

5. (original) A method in accordance with Claim 2 wherein said generating a long axis first estimate of the left cavity comprises calculating an axis of inertia and using the calculated axis of inertia as the first estimate.

6. (original) A method in accordance with Claim 5 wherein said using the first estimate of the long axis to determine at least two points of a second estimate of the long axis comprises:

selecting a right extremity point of the segmented cavity as a first point of the second estimate of the long axis; and

selecting another point within the segmented cavity as a second point of the second estimate of the long axis.

7. (original) A method in accordance with Claim 6 wherein said selecting another point comprises:

calculating a center of inertia point of the left cavity;

intersecting the segmentation with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculating a center of inertia of the intersection; and

using the center of inertia of the intersection as the second point of the second estimate of the long axis.

8. (original) A method in accordance with Claim 5 wherein said using the first estimate of the long axis to determine at least two points of a second estimate of the long axis comprises:

calculating a center of inertia point of the left cavity;

intersecting the segmented left cavity with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculating a center of inertia of the intersection;

using the center of inertia of the intersection as the first point of the second estimate of the long axis; and

selecting another point within the segmented cavity as a second point of the second estimate of the long axis.

9. (previously presented) A method in accordance with Claim 2 wherein said generating the cardiac 3D dataset comprises generating a Computed Tomography (CT) cardiac 3D dataset.

10. (previously presented) A method in accordance with Claim 2 wherein said generating the cardiac 3D dataset comprises generating a Positron Emission Tomography (PET) cardiac 3D dataset.

11. (previously presented) A method in accordance with Claim 2 wherein said generating the cardiac 3D dataset comprises generating a Magnetic Resonance (MR) cardiac 3D dataset.

12. (currently amended) A computer readable medium encoded with a program executable by a computer for generating views of a heart along anatomically useful planes, said program configured to instruct the computer to:

receive a selection representing a layout for displaying the views;

receive a selection representing an imaging exam configured to produce a 3D dataset representing at least one portion of the heart during at least one phase;

automatically receive the cardiac 3D dataset representing [[a]] the at least one portion of the heart;

calculate, from the cardiac 3D dataset, at least one of a short axis and a long axis without user intervention;

generate a volume of a ventricle of the heart based on the imaging exam selected, wherein to generate the volume, said program configured to instruct the computer to create the volume by region growing;

automatically produce a set of images of the at least one portion of the heart, wherein an orientation, with respect to the long axis, of each of the produced images is automatically determined based on the cardiac 3D dataset and the selected layout; and

diagnose the heart by analyzing the volume and the produced set of images.

13. (original) A computer readable medium in accordance with Claim 12 wherein said program further configured to instruct the computer to:

segment a left cavity of the heart;

generate a long axis first estimate of the left cavity; and

use the first estimate of the long axis to determine at least two points of a second estimate of the long axis.

14. (original) A computer readable medium in accordance with Claim 13 wherein said program further configured to instruct the computer to segment a volume whose cardiac EKG phase location is closest to 75% of an R to R interval of the dataset including a plurality of volumes.

15. (original) A computer readable medium in accordance with Claim 13 wherein said program further configured to instruct the computer to:

select a right extremity point of the segmented cavity as a first point of the second estimate of the long axis; and

select another point within the segmented cavity as a second point of the second estimate of the long axis.

16. (original) A computer readable medium in accordance with Claim 15 wherein said program further configured to instruct the computer to:

calculate a center of inertia point of the left cavity;

intersect the segmented left cavity with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculate a center of inertia of the intersection; and

use the center of inertia of the intersection as the second point of the second estimate of the long axis.

17. (currently amended) A medical imaging apparatus for generating views of a heart along anatomically useful planes, said medical imaging system apparatus comprising:

an imaging system comprising:

a detector array;

at least one radiation source; and

a computer coupled to said detector array; and

a workstation coupled to said computer, said workstation configured to:

receive a selection representing a layout for displaying the views;

receive a selection representing an imaging exam configured to produce a 3D dataset representing at least one portion of the heart during at least one ~~phase,~~ phase;

automatically receive the cardiac 3D dataset representing [[a]] the at least one portion of the heart;

calculate at least one of a short axis and a long axis without user intervention; [[and]]

generate a volume of a ventricle of the heart based on the imaging exam selected, wherein to generate the volume, said workstation configured to create the volume by region growing; and

automatically produce a set of images of the at least one portion of the heart, wherein an orientation, with respect to the long axis, of each of the produced images is automatically determined based on the cardiac 3D dataset and the selected layout.

18. (original) A medical imaging system in accordance with Claim 17 wherein said workstation further configured to:

segment a left cavity of the heart;

generate a long axis first estimate of the left cavity; and

use the first estimate of the long axis to determine at least two points of a second estimate of the long axis.

19. (original) A medical imaging system in accordance with Claim 18 wherein said workstation further configured to:

select a right extremity point of the segmented cavity as a first point of the second estimate of the long axis; and

select another point within the segmented cavity as a second point of the second estimate of the long axis.

20. (original) A medical imaging system in accordance with Claim 19 wherein said workstation further configured to:

calculate a center of inertia point of the left cavity;

intersect the segmented left cavity with a plane orthogonal to the first estimate and containing the center of inertia point to form an intersection;

calculate a center of inertia of the intersection; and

use the center of inertia of the intersection as the second point of the second estimate of the long axis.